carried out the former more in the spirit of Buckle and Darwin, it would have added greatly to the interest of the paper and to the coherency of the book. There is also a fairly contemptuous article on "Psychic" force and its manifestations, as described by those who believe in it. His "Crumb for the Symposium" is certainly a dry one; his arguments throw no light on a very dark subject; but he draws an agreeable contrast between ten disputants on the subject of a future life meeting in the sixteenth century, and adjourning to some ecclesiastical court preparatory to a final settlement at Smithfield, with their now forming a symposium for a fair discussion in *The Nineteenth Century*.

Scattered through the book are many eloquent passages of scientific teaching. There is a striking description (p. 18) of the changes the surface of the earth has undergone, which might have prompted Byron's lines on the changelessness of the ocean. One cannot but expect good teaching from a man who lays down the excellent rules and takes the high standard of both learning and teaching truth which Mr. Fiske does, in his affectionate notice of Mr. Chauncey Wright, an eminent specimen of a class of men who, though little thought of and almost unknown individually, are yet the "good belly" which absorbs and distributes all the fresh acquisitions of more active and enterprising "members" of society. And the most valuable habit of mind in such persons is the kind of scepticism recommended by Mr. Buckle, though Mr. Fiske hardly seems to comprehend the feeling, which consists in distrusting received opinions as final; not in refusing to hold any opinions at all, but in being ready to doubt as soon as any good reason is offered. A theory, like a fire, is a very good servant but a very bad master, and true scepticism consists in willingness to give up a theory as soon as facts are brought out with which it is inconsistent. Mr. Fiske praises this high quality in Darwin (p. 34), but in other passages in his book it would appear that he urged a spirit of doubting old axioms only. He seems to think it right to put full faith in a newly-formed opinion, and to "repose" upon it (p. 175). One would have thought that the severe criticisms in his larger work, on Comte's premature conclusions, would have led him to be less confident in scientific "truths," and it is curious to see the spirit that ruled Mr. Chauncey Wright praised by a man who has confidently laid down a cosmic philosophy. Still the harm is not in airing cosmic theories—there are many valuable advantages in doing that—but in clinging to them, as human weakness is only too apt to do when they are no longer consistent with latest observations.

OUR BOOK SHELF

A Ministry of Health, and other Addresses. By B. W. Richardson, M.D., F.R.S. (London: Chatto and Windus, 1879.)

THIS is a collection of addresses given by Dr. Richardson, mostly in his capacity of propagandist of sound ideas as to individual and especially national health. In the lecture which gives the title to the volume he advocates the national urgency for a responsible minister of health, not so much to obtain new sanitary laws as to enforce the multitude of existing laws on the subject, which, from the want of any central authority, are at present a dead letter. Dr. Richardson's arguments are forcible, and must be convincing to any unprejudiced mind, and we trust that ere long his recommendations will be given practical effect to. The second paper is a sympathetic and extremely interesting sketch of the life and work of William Harvey, the model physician, teacher, and public man of his time. The other lectures are: "A Homily Clerico-Medical," "Learning and Health" (in which some valuable hints as to educational methods are given), "Vitality, Individual and National," "The World of Physic," "Burial, Embalming, and Cremation," "Registration of Disease," "Ether-Drinking, and Extra-Alcoholic Intoxication."

Frozen Asia: a Sketch of Modern Siberia. By C. H. Eden. (London: S.P.C.K.)

MR. EDEN has collected in this neat little volume a good deal of valuable information concerning Siberia. The information, however, is somewhat fragmentary in its nature, and not well digested in parts, long quotations from books and journals and daily papers being indulged in. Mr. Eden, in his account of recent explorations, confines himself to a few voyages (mainly Nordenskjöld's) along the coast, ignoring all that has been done in the interior. He, we regret to see, makes use of that most vicious and misleading term, "Turanian," and actually talks of certain quite unrelated peoples as belonging to a mythical "Turanian Stock." The sooner the word is banished from ethnological terminology, the better for the progress of the science. The book, so far as it goes, contains much trustworthy information.

Jack's Education; or, How he Learnt Farming. By Prof. H. Tanner, F.C.S. (London: Chapman and Hall, 1879.)

PROF. TANNER has put together, in the form of a really readable story, a series of papers for the purpose of showing the manner in which the science classes and the Government Department of Art enable a youth to prepare himself for the Government Scholarships, and by a tolerably complete course of science instruction qualify him for learning any industrial occupation with a thoroughly intelligent mind. The instruction in science given in colleges is reviewed from the standpoint of practical requirement, and with special regard to such a course of study being rendered most valuable as a preparation for learning any commercial industry. The story is both instructive and interesting, and we recommend it to all interested in "technical" education.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.*]

Greenwich Meteorological Observations

THE notice of the recently published "Reduction of Greenwich Meteorological Observations," NATURE, vol. xx. p. 525, contains remarks which seem to show misconception in regard to some points of the work. On these the Astronomer-Royal has requested me to offer suitable explanation.

Some criticisms, p. 526, on the table of mean air-temperatures deduced from eye-observations (Table 125), terminate with the remark that the mean temperatures for Greenwich "remain still to be calculated." But it appears to be overlooked that a complete table of standard mean temperatures, daily and monthly, deduced from the photographic records for the twenty years, 1849 to 1868 (from twenty-four readings on each day), is to be found on p. 49 (Table 77). In forming the daily means, values for the few days on which no photographic value was available were derived from the eye-observations; the results thus completely represent the period 1849-1868, and will form

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our standard of reference for air temperature until a further reduction of the photographs shall enable us to extend the period and so further improve them. The mean temperature of Greenwich, according to Table 77, is 49°·72.

The mean temperatures of Table 52 are also deduced from the photographs, without correction for omitted days; they serve to show the climatic variations in different years: if desired, the effect of the omitted days could be readily determined. Here the mean temperature comes out 49°·69.

The table of mean air-temperatures for the period 1847-1873, deduced from eye-observations (Table 125), to which particular attention is drawn, p. 526, is naturally of secondary importance, and really owes its introduction into the volume partly to accident. It was thought desirable in preparing for press the deductions from the photographic records, to add, in the same volume, but in a separate section, a collection of results of the observations of the earth-thermometers for the period 1847-1873, and a table showing the mean air-temperature during the same period seemed a proper accompaniment to these results. Now the photographs had been discussed only for the period 1849-1868, and, as there were already existing mean temperatures for the longer period, 1847-73, deduced from eye observations (by use of Mr. Glaisher's corrections), these temperatures were taken for comparison with the earth-thermometer results. The expression "accurate mean temperatures" (last line of extract, p. 526) was never intended to indicate that Table 125 should supersede Tables 52 and 77, but simply to explain that the air temperatures were *mean* temperatures as distinguished from the *noon* temperatures of the remaining tables of the section. Further it is indicated in a sentence not quoted, but forming portion of the paragraph from which the extract already referred to is taken, that the eye observation series was adopted for this section because photographic results were not available for the whole period. It may be here explained that employment, for reduction of the eye-observations, of the corrections for diurnal range, &c., given by the photographic records, produces values in harmony with the photographic values, and corrections so derived are now used in the reduction of eye-observations for immediate use. But Table 125, as it stood, fulfilled the object for which it was inserted, that object being rather to exhibit *variations* of temperature. No argument founded on the absolute temperatures shown by the earth-thermometers has much significance, because we are unable to test their index errors. In fact, the true value of the whole collection of tables in the earth-temperature section consists, not on their exact indication of absolute temperature, but on the information which they afford in regard to comparative changes of temperature, the retardation of temperature, and generally the propagation downwards of surface-waves of temperature.

In the last paragraph of the notice attention is directed to what is called the "somewhat rough method" adopted in reducing the barometric observations to 32°. This erroneous idea may have, perhaps, been encouraged by the circumstance that in the Introduction no mention appears to have been made of the fact that the temperature of the underground apartment in which the photographic barometer is placed is almost uniform. Considering this in connection with the construction of the apparatus, in which (as fully explained in the Introduction) the register depends on the height of the mercury in the lower tube of a syphon barometer, and is influenced by the expansion of some four inches only of the mercurial column, it will be understood that the effect of temperature (change of temperature) in a period of twenty-four hours (the extent of one sheet) is not perceptible.

In the third and fourth lines of the paragraph, on p. 526, commencing "From this table," it would seem that the word "excess" should be "defect." WILLIAM ELLIS

Royal Observatory, Greenwich, October 7

Saturn's Dusky Ring

I WRITE to call the attention of observers to the present appearance of the inner dusky ring of Saturn. Although the ring is not very open, only permitting that portion near the ends to be seen on the nights of the 9th and 11th of this month, using a portion of a large reflector sufficient only to show Enceladus clearly, it was most prominent, and not to be overlooked. It had the appearance of being covered with bright points, such as a rough dusk paper touched lightly with chalk would give; that part in front of the ball being dark, and showing as a fine dark line across, equal in width and shade to the shadow beneath, so that the narrow part of the whole ring appeared on the face of the planet as if bounded by two fine parallel dark lines. The wide and the narrow division at the ends of the ring were very plain.

Not having seen this dusky ring before, I can only go by the published accounts, but it is so much brighter than they would lead one to suppose that it is very difficult to believe that it is not changing very rapidly. The observation of one to whom the ring is familiar would settle this point. A. A. COMMON

Ealing, October 13

Suicide of the Scorpion

DOUBTS having been expressed at various times, even by learned naturalists, as to the reality of the suicide or self-destruction of the scorpion by means of its own poison, and these doubts having been again stated in NATURE, vol. xx. p. 553, by Mr. R. F. Hutchinson, of Peshawar, as the result of his own observations, I think it may be useful to give an articulate account of the phenomenon as it has been related to me by an eye-witness, which removes all possible doubt as to its occurrence in certain circumstances.

While residing many years ago during the summer months at the baths of Lucca, in Italy, in a somewhat damp locality, my informant, together with the rest of the family, was much annoyed by the frequent intrusion of small black scorpions into the house, and their being secreted among the bedclothes, in shoes, and in other articles of dress. It thus became necessary to be constantly on the watch for these troublesome creatures, and to take means for their removal and destruction. Having been informed by the natives of the place that the scorpion would destroy itself if exposed to a sudden light, my informant and her friends soon became adepts in catching the scorpions and disposing of them in the manner suggested. This consisted in confining the animal under an inverted drinking-glass or tumbler, below which a card was inserted when the capture was made, and then, waiting till dark, suddenly bringing the light of a candle near to the glass in which the animal was confined. No sooner was this done than the scorpion invariably showed signs of great excitement, running round and round the interior of the tumbler with reckless velocity for a number of times. This state having lasted for a minute or more, the animal suddenly became quiet, and turning its tail or the hinder part of its body over its back, brought its recurved sting down upon the middle of the head, and piercing it forcibly, in a few seconds became quite motionless, and, in fact, quite dead. This observation was repeated very frequently; in truth, it was adopted as the best plan of getting rid of the animals, and the young people were in the habit of handling the scorpions with impunity immediately after they were so killed, and of preserving many of them as curiosities.

In this narrative the following circumstances are worthy of attention:—(1) the effect of light in producing the excitement amounting to despair which causes the animal to commit self-destruction; (2) the suddenness of the operation of the poison, which is probably inserted by the puncture of the head into the upper cerebral ganglion; and (3) the completeness of the fatal symptoms at once induced.

I am aware that the phenomena now described have been observed by others, and they appear to have been familiarly known to the inhabitants of the district in which the animals are found. Sufficient confirmation of the facts is also to be found in the narratives of G. Biddie and "M. L." contained in NATURE, vol. xi. pp. 29, 47, and it will be observed that the circumstances leading the animal to self-destruction in these instances were somewhat similar to those narrated by my informant. It is abundantly clear, therefore, that the view taken by Mr. Hutchinson, viz., that the "popular idea regarding scorpionic suicide is a delusion based on an impossibility" is wholly untenable; and indeed, the recurved direction of the sting, which he refers to as creating the impossibility of the animal destroying itself, actually facilitates the operation of inflicting the wound. I suppose Mr. Hutchinson, arguing from the analogy of bees or wasps, imagined that the sting would be bent forwards upon the body, whereas the wound of the scorpion is invariably inflicted by a recurvation of the tail over the back of the animal. ALLEN THOMSON

London, October 11

Climatic Effects of the Present Eccentricity

I ASK for an explanation of the following difficulty:—

Dr. Croll says, in his "Climate and Time" (p. 65), that "the

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